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The dark poppy is painted for the first firing with ruby purple, the outside lighter petals made quite gray; second firing shade with red brown. Center is brown green and dark green; stamens, ruby purple and neutral green; small petals in center, grayish purple of ruby purple and neutral gray. The poppy showing the back is pink, like the center one. Stems and buds are pale green, buds blue green, stems yellow green. Shade stems with brown green, buds with same and a little dark green. Leaves, bluish green, dark parts warm and yellowish. Background around flowers, delicate grays, to harmonize with painting. As it runs behind the paste border strong color may be used in delicate washes. When thoroughly dry lay paste, and fire. Be sure and paint broadly for the first firing, getting a harmony of light and shade and color, and the finishing detail will be easy for the second firing.

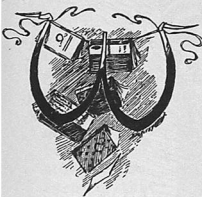
—how long, five months?—and the firer has probably been as many years at his work as you have months. Now do you not believe that he understands his part of the business much better than you do yours? Barring actual breakage in handling, which is, of course, the result of accident—only if it happens to our pieces we are apt to believe it from gross carelessness—there are but few ways in which the firer is at fault. He may fire too long or too little—in the latter case he will, if conscientious, re-fire your article free of charge—but neither of these contingencies is likely to happen to one who understands his business. He knows the necessary degree of heat to develop the colors and render them fast, and also the length of time to attain this high temperature. Time, therefore, added to his experience, guided by his sight, teaches him how long to fire, and exactly when to draw off the fire. There are two



DESIGN FOR A VASE OR JARDINIÈRE. BY E. T. REEVES.

WHY CHINA IS SPOILED IN THE FIRING.

BY MRS. N. R. MONACHESI.



"HY is my china so often spoiled in the firing?" is a common wail of woe among the amateur china painters. "I always take it to well recommended firms, and yet it is returned to me frequently entirely spoiled, sometimes ruined beyond redemption. Sometimes there is no glaze, sometimes the colors are quite changed in hue, and sometimes wipes entirely off. Then again my lovely pansies blistered and somewhat resembled a severe case of small-pox, and the gold on the edge rubbed all off except a few spots, and my raised paste work has flattened out as though an elephant had stepped on it. It is very discouraging. It must be the fault of the firer, for when I take it to be fired it looks beautifully and I am quite proud of it, yet it is invariably spoiled when I get it again. It is too bad! He must do it on purpose! Or else my china is hoodooed!"

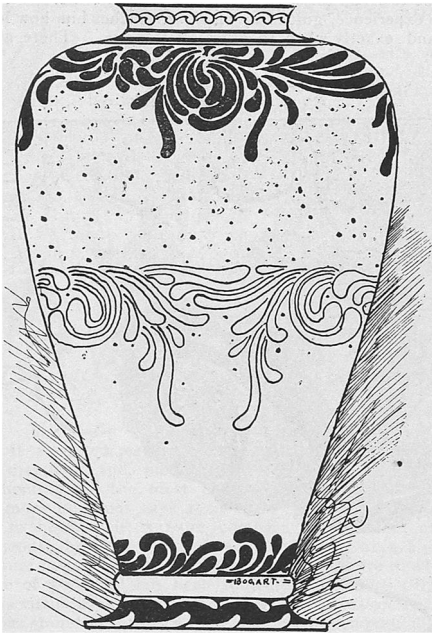
Did it never occur to you, my dear, disappointed, discouraged decorator, that the fault might be your own, instead of the poor firer's? No? It is so easy to blame some one else, to shift the responsibilities of our own shortcomings upon other shoulders. Let me see, you have been painting on china now for

other accidents liable to occur that are unavoidable. An imperfection in the body of the ware, like a grain of sand, will sometimes free itself to gain more room for expansion, and the result is sometimes quite an explosion and a possible breakage of everything in the kiln. Sometimes the piece will simply split in two or three pieces. This may be done noiselessly, but the crash follows when it lets the other pieces down—for china is piled upon each other, separated and supported only by stilts. If the bottom plate breaks, it will naturally let the whole lot on top down. Another thing that occasionally happens, if certain sensitive colors are in too close proximity to liquid bright gold, the fumes from which will spoil these colors. The firer usually takes care and not bring together two things liable to affect each other, but sometimes even with care the fumes from one will affect the other, should the ventilation not be perfect. There is but one other thing the firer can do to spoil the china, and that is either to close the kiln too soon and heat it up too rapidly. All china sweats at the first contact with heat, and this must find vent in evaporation out of the kiln. Otherwise it falls back, and this moisture settling on the surface of the china will spoil the glaze. If once gone, from this or any other cause, it is irremediable.

In gas kilns, an excess of gas will discolor the china. Sometimes another firing will restore the color to its natural beauty. But as a rule accidents from this cause are considered a very sad disaster, as ruination is usually the result. But this seldom happens if the firer has control of the gas. The amount the

kilns consume is always properly provided for when the kiln is adjusted. These are about all the dangerous elements in the hand of the firer, and these it must be remembered are reduced to a minimum where professional skill is concerned. If then your china has not been spoiled by one or the other of these causes the probabilities are they are the direct result of carelessness or ignorance on your own part. Perhaps these disasters can be rectified in the future if their probable causes are pointed out and how to avoid them is explained.

The uncertain element of fire to which china is subject must be always taken into consideration when painting. This is



A DECORATED VASE. BY A. B. BOGART.

imperative, and you must therefore mix a little judgment, with considerable knowledge and a dash of experience, with every pigment you use.

In the first place, a mixture of some colors, although looking all right before firing, will come from the kiln very different. To avoid this try little tests as sample colors. Do this on broken bits of China, keep an accurate memorandum and have them fired for future reference.

Two of the uncertain colors to mix are red and yellow—the latter, being in some cases very strong, will devour every trace of some of the reds. They can, however, be modified one with the other, but certain proportions must be observed. Every one should find this out for herself by constantly making experimental tests.

It is not within the limited scope of this article to do more than point out wherein lie the principal causes of disappointment after firing, and in a measure how to avoid them, without entering into technical details of instruction.

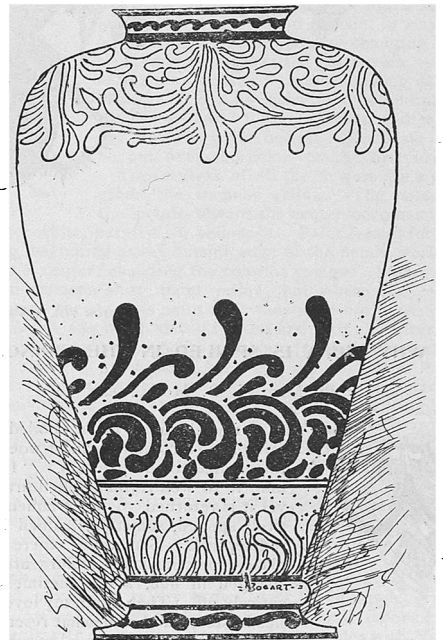
If you desire a high glaze on your china, add flux. Some of the colors are very poor in this quality. Add flux to all colors, if you are going to use very thin, such as flesh tints and some of the browns.

This will give a glaze and help retain a color that might wipe off if underfired, and which would be destroyed altogether if fired hard—for instance, carnation. Use carmines very, very thin if you want them to fire a pretty pink color. Never be tempted to use it thick or apply heavy when you want the color darker. The minute you want a dark pink you no longer must use carmine. Use another color that is darker—no try to make a pale shade do duty for both light and dark. If your raised paste flattens out there has been too much oil in its

preparation. If your enamel fires lumpy and irregularly, it was not thoroughly dry before placing in the kiln. Both enamel work and paste work must be thoroughly dry before firing, and the process must not be hastened by any artificial means.

If your dots of enamel in imitation of jewels fly off in the firing, taking, as they frequently do, the glaze or the surface of the china with them, it is because the glaze and the dots of enamel do not expand alike under the influence of the heat. This frequently occurs with French china. English ware has a softer glaze and gives more satisfaction with opaque enamels. If your colors blister and chip off, it is because laid on too heavy. Consequently, there was a surplus of oil. If a darker color is desired, apply a second or third time rather than attempt to obtain its full depth by one application, taking the precaution of allowing each successive wash to dry.

Those colors made from gold are more apt to blister in firing than some others. Your purple pansies were ruined this way. Carmine, too, will do the same thing if put on too thick. There is no remedy for this. Carmine, too, is one of the test colors. If underfired it is of a yellowish tint; if overfired it turns to a bluish shade. In the first instance a refiring at a higher temperature will bring it all right. If, however, the carmine is overfired there is no remedy. Gold is another thing that causes considerable dissatisfaction in the firing. No one can learn except from actual experience, which always includes many and repeated failures, just exactly how to put gold on. If it is too thin it all wipes off, and if too thick it blisters and flies off, so that in either case there will be none left, and the bare spots of white china show a very defective treatment. The former error is as often the result of parsimony as ignorance. Gold is expensive, compared to colors, and if applied thin, from motives of economy, it is principally



DECORATED VASE. BY A. B. BOGART.

the oils, etc., that are used in its preparation that is on the china, and which fire away, and not gold. If the gold deposit is not there before firing there is known no occult process by which it gets there in the kiln. The secret of applying gold is to put on just enough, and put it on as smoothly as possible. "Just enough" is perhaps a trifle vague, but there must be sufficient to cover the china; and since it is opaque, it is an unnecessary waste of valuable material to put on any more than enough. Experience is, after all, the best teacher.